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OPTICAL COMMUNICATION TRUNK CABLE AND BRANCHING TOOL FOR OPTICAL
COMMUNICATION TRUNK CABLE

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Abstract

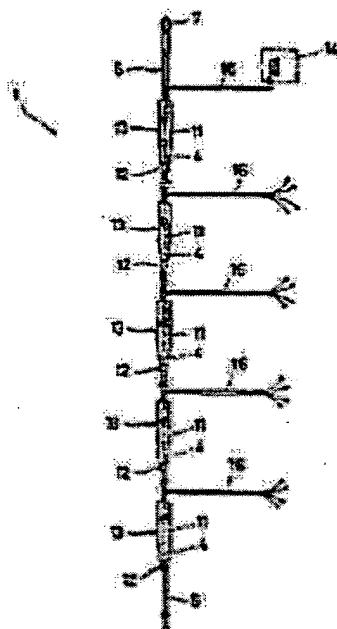
Objective

To provide an optical communication trunk cable and a branching tool for optical communication trunk cable capable of wiring the optical communication cable by conducting

hard work, such as welding and connecting, in a factory and by using the branching tool for installation with simple on-site work and capable of being transferred in the same manner as a conventional cable from the factory to the work site.

Constitution

The optical communication trunk cable is comprised of a connecting optical cable, wherein the sheath in at least two prescribed locations on the optical communication trunk cable main body, which has a plurality of coated optical fibers or optical fiber tapes covered by the sheath, is removed at the factory, and wherein a connector is attached to the end by welding/connecting to the removed coated optical fibers or optical fiber tapes, and a branching tool comprised of a base plate on which a connecting tool, which is used for connecting the connector of the connecting optical cable and the connector of an FO cable connected to an optical wiring box at the work site, is mounted, a case body that covers the optical communication trunk cable main body at the position of the base plate, and a cover body, wherein the base plate that is installed in a detachable manner on the case body is accommodated.



Claims

1. An optical communication trunk cable characterized in that it comprises an optical communication trunk cable main body, wherein a plurality of coated optical fibers or optical

fiber tapes used in a state suspended from top to bottom of a structure are covered by a sheath, a connecting optical cable, wherein the sheath, in at least two prescribed locations on the optical communication trunk cable main body, is removed at the factory, and wherein a connector is attached to the end by welding/connecting to preset coated optical fibers or optical fiber tapes in the optical communication trunk cable main body; a cover that covers the bottoms of the areas where the sheath has been removed such that the end of the aforementioned connecting optical cable projects outwards, and a branching tool comprised of a base plate on which a connecting tool, which is used for connecting the connector of the connecting optical cable and the connector of an FO cable connected to an optical wiring box at the work site, is mounted; a case body that covers the base plate and the optical communication trunk cable main body at the position of the base plate; and a cover body, wherein the base plate that is installed in a detachable manner on the case body is accommodated.

2. An optical communication trunk cable characterized in that it comprises an optical communication trunk cable main body, wherein a plurality of coated optical fibers or optical fiber tapes used in a state suspended from top to bottom of a structure are covered by a sheath; a connecting optical cable, wherein the sheath, in at least two prescribed locations on the optical communication trunk cable main body, is removed at the factory, and wherein an MU-type simple ferrule is attached to the end by welding/connecting to preset coated optical fibers or optical fiber tapes in the optical communication trunk cable main body; a cover that covers the areas where the sheath has been removed such that the end of the aforementioned connecting optical cable projects outwards; and a branching tool comprised of a base plate on which a connecting tool, which is used for connecting the MU-type simple ferrule of the connecting optical cable and the connector of an FO cable connected to an optical wiring box at the work site, is mounted; a case body that covers the base plate and the optical communication trunk cable main body at the position of the base plate; and a cover body, wherein the base plate that is installed in a detachable manner on the case body is accommodated.

3. An optical communication trunk cable characterized in that it comprises an optical communication trunk cable main body, wherein a plurality of coated optical fibers or optical fiber tapes used in a state suspended from top to bottom of a structure are covered by a sheath; a connecting optical cable, wherein the sheath, in at least two prescribed locations on the optical communication trunk cable main body, is removed at the factory, and the preset coated optical fibers or optical fiber tapes in the optical communication trunk cable main body are drawn out a certain distance with an MT connector attached to the ends of the drawn-out coated optical fibers or optical fiber tapes and another MT connector attached to the aforementioned MT connector and a simple ferrule attached to the end of the connecting optical cable, a cover that covers one end of the areas where the sheath is removed such that the end of the aforementioned drawn-out

coated optical fibers or optical fiber tapes projects outwardly, and a branching tool comprised of a cover body having a simple receptor used for connecting the simple ferrule of the aforementioned connecting optical cable to one end that covers the areas where the sheath is removed.

4. A branching tool for an optical communication trunk cable comprised of a base plate on which a connecting tool used for connecting the connector at the end of a connecting optical cable welded and connected to optical fibers or optical fiber tapes branched from an optical communication trunk cable and the connector of an FO cable connected to an optical wiring box is mounted, a case body that covers the base plate and the optical communication trunk cable at the position of the base plate, and a cover body wherein the base plate that is installed in a detachable manner on the case body is accommodated.

5. A branching tool for an optical communication trunk cable comprised of an accommodating part that accommodates a connecting tool used for connecting the connector at the end of a connecting optical cable welded and connected to optical fibers or optical fiber tapes branched from an optical communication trunk cable and the connector of an FO cable connected to an optical wiring box and that accommodates the welded and connected part, a case body that covers the base plate and the optical communication trunk cable at the position of the base plate, and a cover body wherein the base plate that is installed in a detachable manner on the case body is accommodated.

6. A branching tool for an optical communication trunk cable comprised of a case body that can house in a detachable manner the optical communication trunk cable in the areas where the sheath is removed and a simple receptor used for connecting a simple ferrule of a connecting optical cable connected to the coated optical fibers or optical fiber tapes drawn out from the aforementioned optical communication trunk cable via an MT connected to one end of the case body.

Detailed explanation of the invention

[0001]

Industrial application field

The present invention pertains to an optical communication trunk cable and a branching tool for optical communication trunk cable used when setting an optical communication trunk cable in office buildings or other structures.

[0002]

Prior art

Conventionally, in a private optical cabinet PT, in an office building or other structure, connected to a buried optical communication trunk cable from the outside, prescribed optical fiber tapes in the optical communication trunk cable suspended from the top of the structure are welded and connected to a private optical cabinet PD set on a prescribed floor, and optical cables on that floor and its adjacent floors are used to form the connection from said private optical cabinet PD to the circuit connecting device set on each floor.

[0003]

Problems to be solved by the invention

In a conventional optical communication trunk cable used in a suspended state in a structure, the sheath must be removed at prescribed positions at the work site and the optical fiber tapes of the optical communication trunk cable must be connected to the private optical cabinet PD. This operation is labor-intensive, which is disadvantageous.

[0004]

The purpose of the present invention is to solve the aforementioned problem by providing an optical communication trunk cable and a branching tool for an optical communication trunk cable capable of wiring the optical communication cable by performing hard work, such as welding and connecting, at the factory, and by using the branching tool for installation by means of work at the job site and capable of being transferred in the same manner as a conventional one from the factory to the job site.

[0005]

The aforementioned and other purposes as well as the novel characteristics of the present invention will be further clarified by the following explanation made with reference to the attached figures. The figures, however, are used only for purposes of explanation and do not limit the technical scope of the present invention.

[0006]

Means to solve the problems

In order to realize the aforementioned purpose, the present invention provides an optical communication trunk cable characterized by having an optical communication trunk cable main body wherein a plurality of coated optical fibers or optical fiber tapes used in a state suspended from the top to the bottom of a structure are covered by a sheath, a connecting optical cable

wherein the sheath in at least two prescribed positions on an optical communication trunk cable main body is removed at the factory and wherein a connector is attached to the end welded and connected to preset coated optical fibers or optical fiber tapes in the optical communication trunk cable main body, a cover that covers the bottoms of the areas where the sheath is removed such that the end of the aforementioned connecting optical cable projects outwardly, and a branching tool comprised of a base plate on which a connecting tool used for connecting the connector of the connecting optical cable and the connector of an FO cable connected to an optical wiring box at the job site is mounted, a case body that covers the base plate and the optical communication trunk cable main body at the position of the base plate, and a cover body wherein the base plate that is installed in a detachable manner on the case body is accommodated.

[0007]

The present invention also provides a branching tool for an optical communication trunk cable comprised of a base plate on which a connecting tool used for connecting the connector at the end of a connecting optical cable welded and connected to optical fibers or optical fiber tapes branched from an optical communication trunk cable and the connector of an FO cable connected to an optical wiring box is mounted, a case body that covers the base plate and the optical communication trunk cable at the position of the base plate, and a cover body wherein the base plate that is installed in a detachable manner on the case body is accommodated.

[0008]

Embodiment of the invention

In the following, the present invention will be explained in more detail with reference to application examples shown in the figures.

[0009]

In the first embodiment of the present invention shown in Figures 1-9, 1 represents the optical communication trunk cable of the present invention suspended from the top floor of office building or other structure 2 to the bottom floor via through-holes 3, 3, 3, 3 formed on each floor. Said optical communication trunk cable 1 is manufactured in a factory based on a design suitable for a specific job site. The optical communication trunk cable is comprised of tape slot type optical communication trunk cable main body 5 having five 4-count optical fiber tapes 4, 4, 4, 4, 4 as shown in Figure 3, cable suspending tool 7 that can be installed on installation fixture 6 fixed on the ceiling of said structure 2 and is attached to the upper end of said optical communication trunk cable main body 5 as shown in Figure 4, connecting optical cables 11, 11, 11, 11, 11 which have sheath 8 of said optical communication trunk cable main

body 5 at the position of each floor of said structure 2 removed as shown in Figure 5 and are welded and connected to preset 4-count optical fiber tapes 4, 4, 4, 4, 4, of optical communication trunk cable main body 5 and which are covered by protective tube 9 and have MU-type simple ferrules 10, 10, 10, 10, 10 attached to the end, and covers 12, 12, 12, 12, 12 which cover the bottom of the areas where said sheath 8 is removed such that the ends of said connecting optical cables 11 project outwardly.

[0010]

13, 13, 13, 13, 13 represent branching tools, which connect said connecting optical cables 11, 11, 11, 11, 11 to FO cables 16, 16, 16, 16, 16 having MU-type connector 15 connected to optical wiring boxes 14, 14, 14, 14, 14 and which cover the connected parts. As shown in Figures 7-9, each of said branching tools 13, 13, 13, 13, 13 is comprised of a base plate 19 that can be supported in the area of said optical communication trunk cable main body 5 where sheath 8 is removed and has accommodating part 17 accommodating the welded and connected part of said connecting optical fiber 11 and has a connecting tool 18 used for connecting the MU-type simple ferrules 10, 10, 10, 10 of said connecting optical cable 11 to the MU-type connector 15 of said FO cable 16, a box-shaped case body 21 having a gradually reduced bottom part and base plate supporting part 20 that can cover said base plate 19 and the area of said optical communication trunk cable main body 5 where base plate 19 is installed, and a cover body 23 having a gradually reduced bottom part and having said base plate 19 positioned inside and mounted on said case body 21 with multiple screws 22 to cover the opening part 21a of said case body 21.

[0011]

Connecting optical cables 11, 11, 11, 11, 11 are welded and connected to optical communication trunk cable main body 5 with the aforementioned configuration at the factory. With the connected parts protected by protective covers, etc., the optical communication trunk cable main body is delivered to the work site, where it is suspended from the top floor to the bottom floor of structure 2 while branching tools 13, 13, 13, 13, 13 are installed. It is also possible to install branching tools 13, 13, 13, 13, 13 after the optical communication trunk cable main body is suspended from top floor to the bottom floor of structure 2. In this way, optical communication trunk cable 1 is completed.

[0012]

Other embodiments of the invention

Other embodiments of the present invention will be explained below with reference to Figures 10-22. When explaining these embodiments of the present invention, the same

constituent parts as those described in the first embodiment are represented by the same respective symbols. Their explanation is omitted.

[0013]

Figures 10-13 show the second embodiment of the present invention. The main difference from the first embodiment of the present invention is using branching tools 13A, 13A, 13A, 13A, 13A having case body 21A and cover body 23A with gradually reduced upper and lower ends. Optical communication trunk cable 1A using 13A, 13A, 13A, 13A, 13A formed this way has the same effect as that described in the first embodiment of the present invention.

[0014]

Figures 14-17 show the third embodiment of the present invention. The main difference from the first embodiment of the present invention is using connecting optical cables 11A, 11A, 11A, 11A, 11A with connectors 24, 24, 24, 24, 24 attached to the end and using branching tools 13B, 13B, 13B, 13B, 13B having connecting tool 18A used for connecting the connectors 24, 24, 24, 24, 24 of connecting optical cables 11A, 11A, 11A, 11A, 11A to the connector 15 of FO cable 16. Optical communication trunk cable 1B with the aforementioned configuration has the same effect as that described in the first embodiment of the present invention.

[0015]

Figures 18-22 show the fourth embodiment of the present invention. The main difference from the first embodiment of the present invention is the use of connecting optical cable 28 with MT connector 25 attached to the end of 4-count optical fiber tape 4 drawn a certain distance from the area of optical communication trunk cable main body 5 where the sheath is removed, with MT connector 26 attached to MT connector 25, with simple ferrule 27 attached to the end and using optical communication trunk cable branching tool 13C comprised of cover body 23B that covers the aforementioned area where the sheath is removed, and with simple receptor 29 connected to the simple ferrule 27 of connecting optical cable 28 attached to one end. For optical communication trunk cable 1C with the aforementioned configuration, as shown in Figure 22, simple receptor 29 and optical wiring box 14 can be easily connected by FO cable 16. The end of FO cable 16 connected to simple receptor 29 of optical communication trunk cable branching tool 13C on the side of said simple receptor 29 is covered by a soft vinyl cover 3 that covers the end of optical communication trunk cable branching tool 13C.

[0016]

Tape slot type optical communication trunk cable main body 5 is used in each of the aforementioned embodiments of the present invention. The present invention is not limited in this way. It is also possible to use a bundle of optical fibers covered by a sheath. The number of 4-count optical fibers can be 10, 15, 25, or 50. Branching tools 13, 13A, 13B, 13C can be set only on certain floors instead of on each floor.

[0017]

Effects of the present invention

As explained above, the present invention has the following effects.

[0018]

(1) The optical communication trunk cable of the present invention is comprised of an optical communication trunk cable main body wherein a plurality of coated optical fibers or optical fiber tapes used in a state suspended from the top to the bottom of a structure are covered by a sheath, a connecting optical cable wherein the sheath in at least two prescribed positions on an optical communication trunk cable main body is removed at the factory and wherein a connector is attached to the end welded and connected to preset coated optical fibers or optical fiber tapes in the optical communication trunk cable main body, a cover that covers the bottoms of the areas where the sheath is removed such that the end of the aforementioned connecting optical cable projects outwards, and a branching tool comprised of a base plate on which a connecting tool used for connecting the connector of the connecting optical cable and the connector of an FO cable connected to an optical wiring box at the job site is mounted, a case body that covers the base plate and the optical communication trunk cable main body at the position of the base plate, and a cover body wherein the base plate that is installed in a detachable manner on the case body is accommodated. Therefore, there is no need to weld and connect the optical communication trunk cable main body and the connecting optical cable at the job site.

[0019]

(2) According to point (1), since the branching parts for connecting the coated optical fibers or optical fiber tapes of the optical communication trunk cable main body to the connecting optical cables are welded and connected at the factory, the quality can be guaranteed. Consequently, the reliability of the wiring of the optical communication trunk cable can be improved.

[0020]

(3) According to point (1), since it is only necessary to connect the connector and the connecting tool and to install the branching tool comprised of base plate, case body, and cover body, the connecting operation can be carried out easily even without a technician with special knowledge of connecting optical cables.

[0021]

(4) Claims 2, 3, 4, also have said effects (1)-(3).

Brief description of the figures

Figure 1 is a diagram explaining the use state of the first embodiment of the present invention.

Figure 2 is a diagram explaining the first embodiment of the present invention.

Figure 3 is a diagram explaining the optical communication trunk cable main body in the first embodiment of the present invention.

Figure 4 is a diagram explaining the suspending tool in the first embodiment of the present invention.

Figure 5 is a diagram explaining the connecting state of the branching part in the first embodiment of the present invention.

Figure 6 is a diagram explaining the installation state of the branching tool in the first embodiment of the present invention.

Figure 7 is the exploded diagram of the first embodiment of the present invention.

Figure 8 is the cross-sectional view along line 8-8 in Figure 6.

Figure 9 is the cross-sectional view along line 9-9 in Figure 6.

Figure 10 is a diagram explaining the use state of the second embodiment of the present invention.

Figure 11 is a diagram explaining the second embodiment of the present invention.

Figure 12 is a diagram explaining the branching part in the second embodiment of the present invention.

Figure 13 is the exploded diagram of the branching tool in the second embodiment of the present invention.

Figure 14 is a diagram explaining the use state of the third embodiment of the present invention.

Figure 15 is a diagram explaining the third embodiment of the present invention.

Figure 16 is a diagram explaining the installation state of the branching tool in the third embodiment of the present invention.

Figure 17 is the exploded diagram of the branching tool in the third embodiment of the present invention.

Figure 18 is a diagram explaining the use state of the fourth embodiment of the present invention.

Figure 19 is a diagram explaining the fourth embodiment of the present invention.

Figure 20 is a diagram explaining the connection state of the branching part in the fourth embodiment of the present invention.

Figure 21 is a diagram explaining the installation state of the branching tool in the fourth embodiment of the present invention.

Figure 22 is the oblique view of the fourth embodiment of the present invention.

Explanation of symbols

1, 1A, 1B, 1C	Optical communication trunk cable
2	Structure
3	Through-hole
4	4-count optical fiber tape
5	Optical communication trunk cable main body
6	Installation fixture
7	Cable suspending tool
8	Sheath
9	Protective tube
10	MU-type simple ferrule
11, 11A	Connecting optical cable
12	Cover
13, 13A, 13B, 13C	Branching tool
14	Optical wiring box
15	Mu-type connector
16	FO cable
17	Accommodating part
18, 18A	Connecting tool
19	Base plate
20	Base plate supporting part
21, 21A, 21B	Case body
22	Screw
23, 23A 23B	Cover body
24	Connector

- 25 MT connector
- 26 MT connector
- 27 Simple ferrule
- 28 Connecting optical cable
- 29 Simple receptor
- 30 Soft vinyl cover

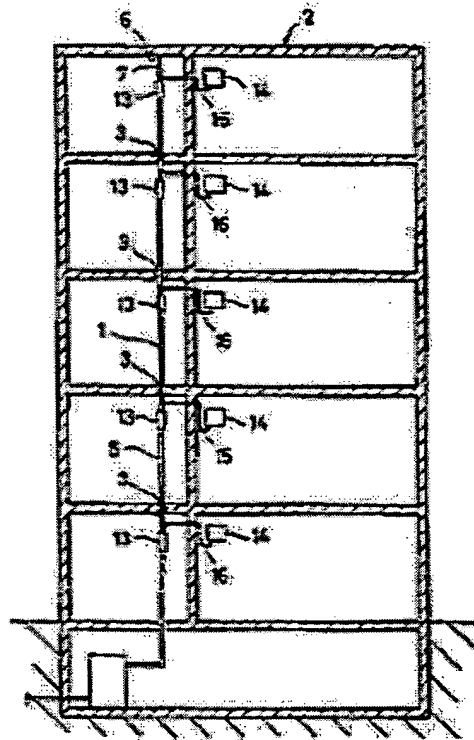


Figure 1

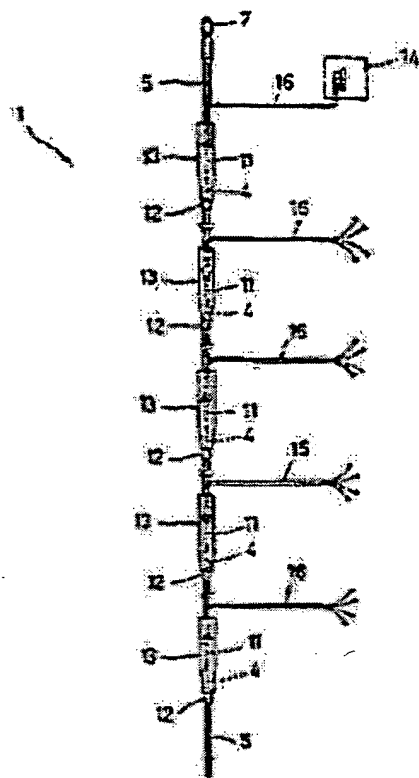


Figure 2

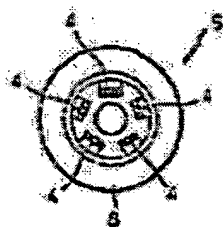


Figure 3

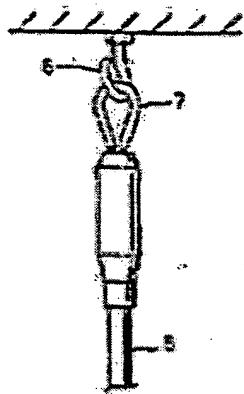


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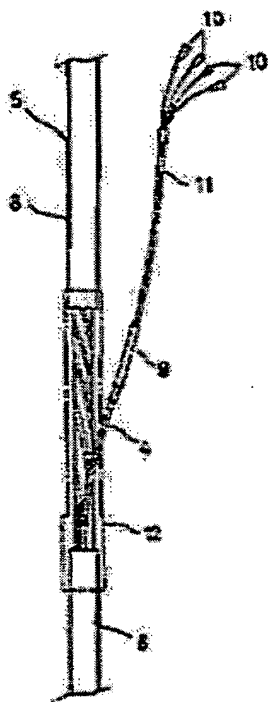


Figure 5

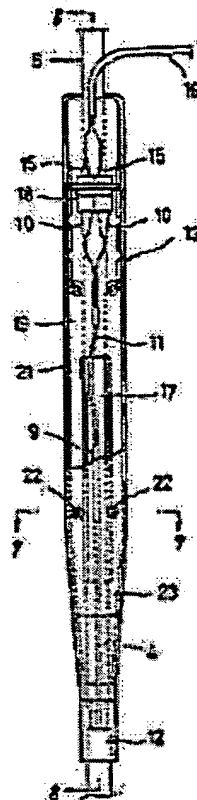


Figure 6

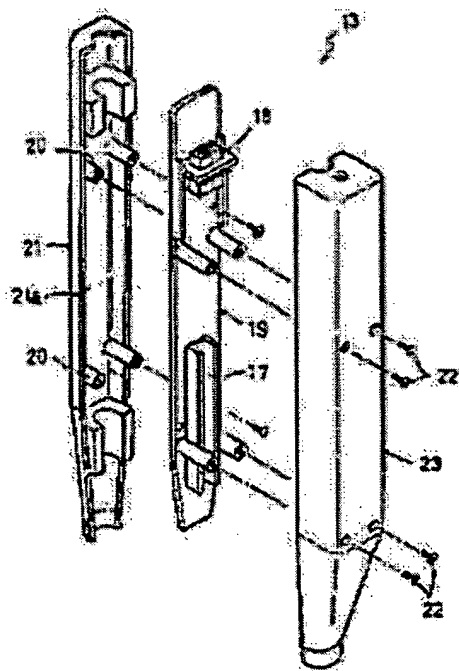


Figure 7

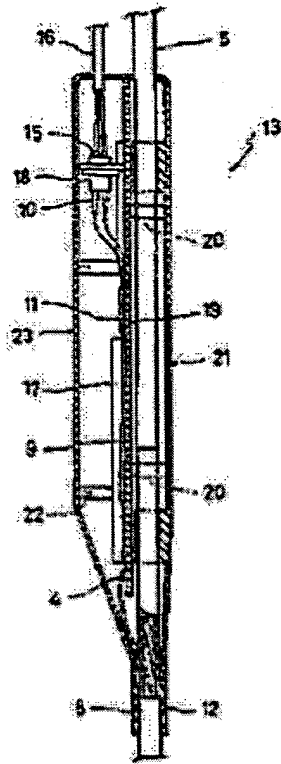


Figure 8

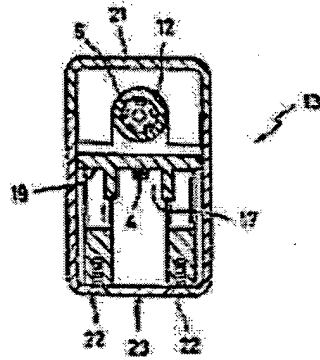


Figure 9

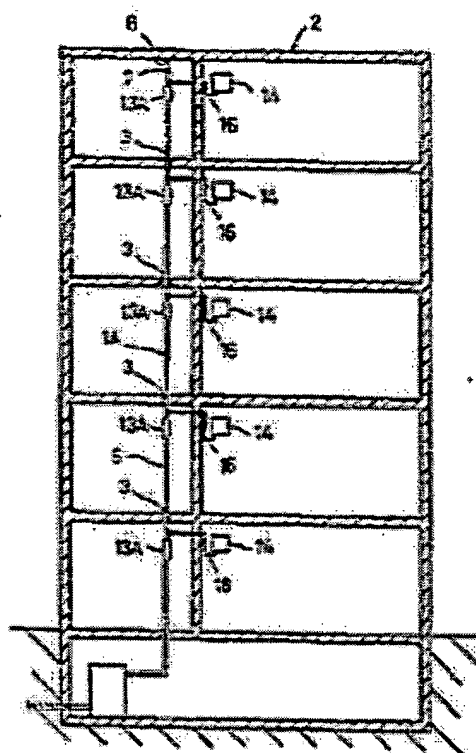


Figure 10

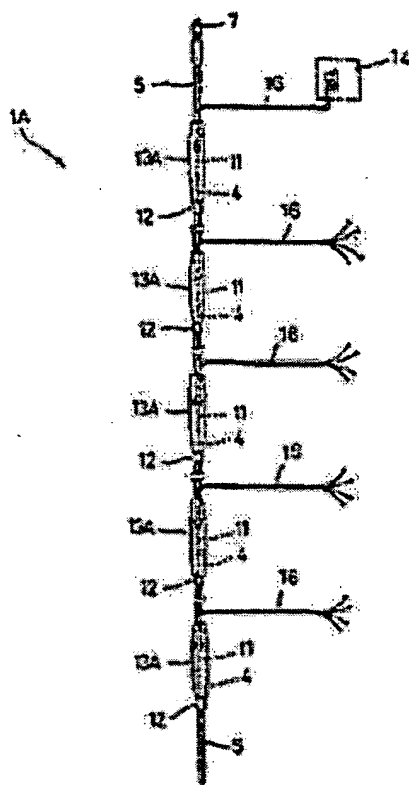


Figure 11

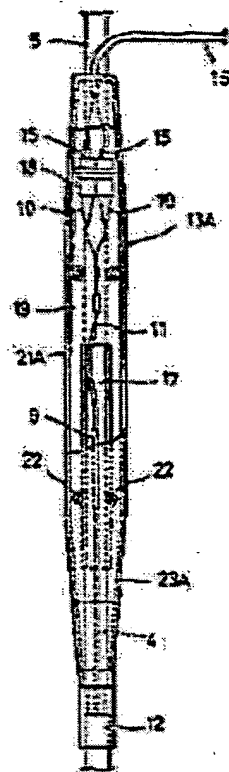


Figure 12

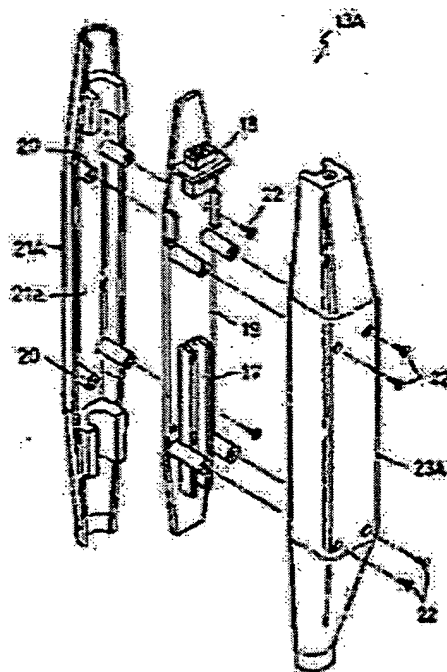


Figure 13

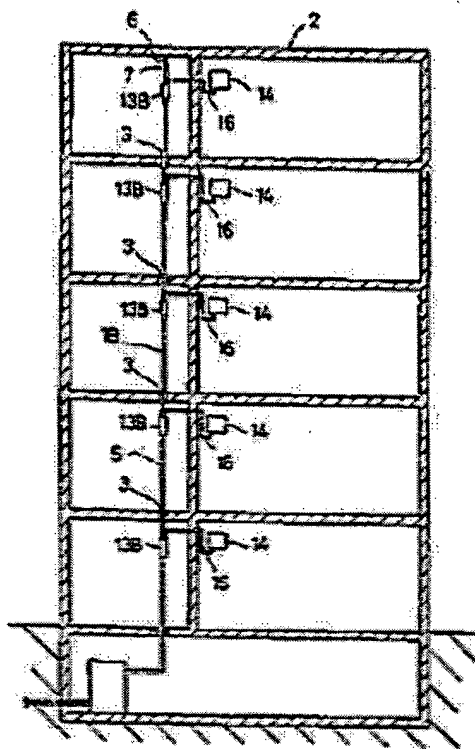


Figure 14

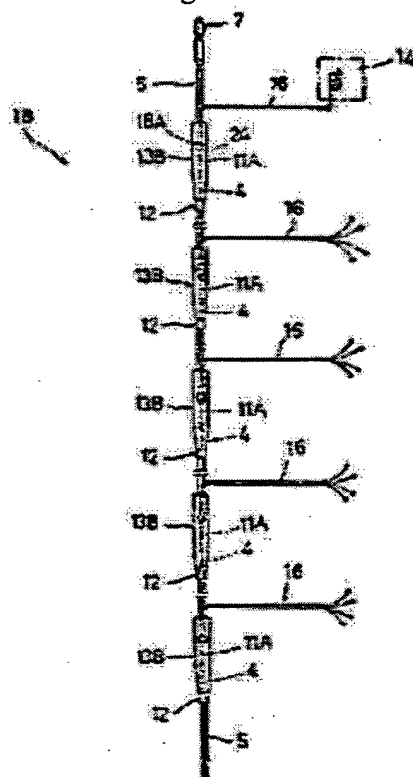


Figure 15

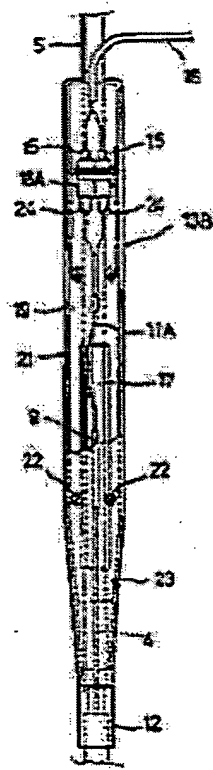


Figure 16

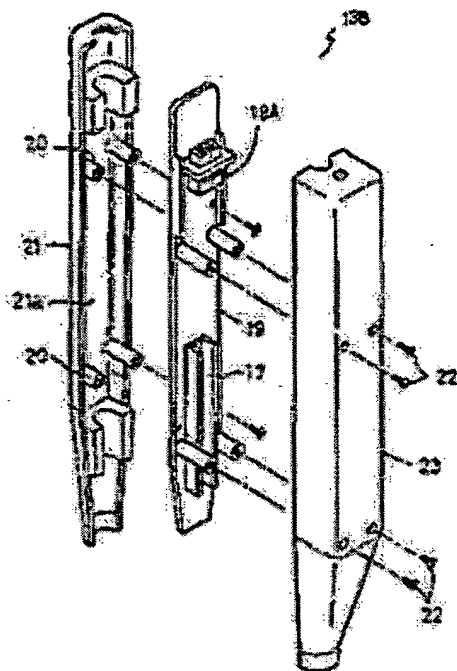


Figure 17

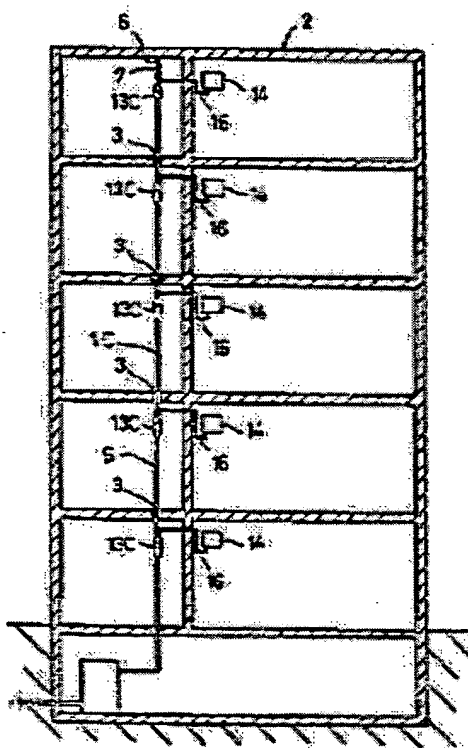


Figure 18

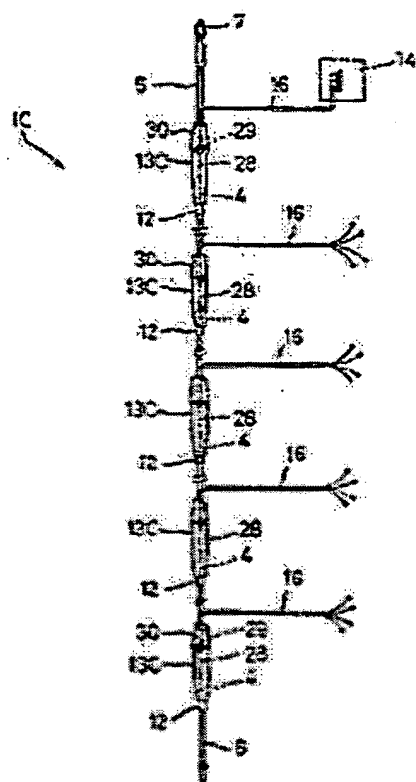


Figure 19

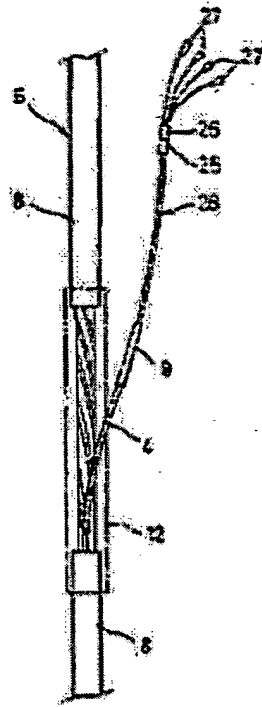


Figure 20

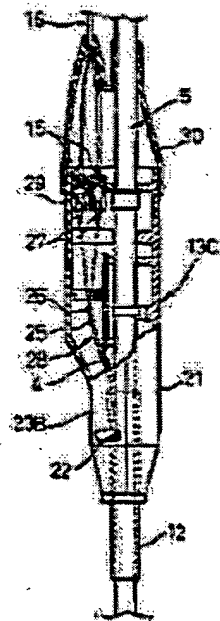


Figure 21

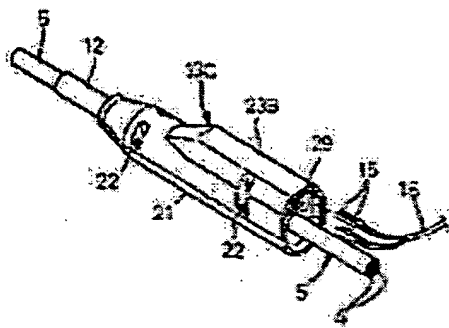


Figure 22



PATENT ABSTRACTS OF JAPAN

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**(54) OPTICAL COMMUNICATION TRUNK CABLE AND
 BRANCHING TOOL FOR OPTICAL
 COMMUNICATION TRUNK CABLE**

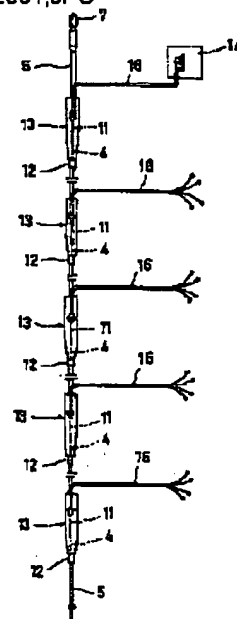
(57) Abstract:

PROBLEM TO BE SOLVED: To obtain an optical communication trunk cable and a branching tool for the optical communication trunk cable capable of wiring the optical communication cable by executing hard work such as welding and connecting in a factory and by using the branching tool for attaching with simple work in a job site and capable of being transferred in the same manner as a conventional one from the factory to the job site.

SOLUTION: The optical communication trunk cable is composed of a connecting optical cable wherein sheathes in at least two or more prescribed positions of an optical communication trunk cable main body in which plural coated optical fibers or optical fiber tapes are covered with the sheath are removed in the factory and wherein a connector is attached to a tip end welded/connected with the taken-out coated optical fibers or the optical fibers tapes, a casing body which covers a base plate to which a connector connecting the connector of the connecting optical cable to the connector of

an FO cable connected to an optical wiring box in the installing job site is attached and the optical communication trunk cable main body in the base plate section, and the branching tool consisting of a cover body which houses the base plate attached to the casing body so as to be attachable and detachable.

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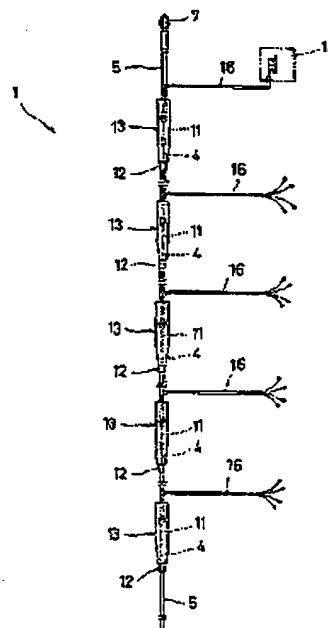
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(54) 【発明の名称】 光通信幹線ケーブルおよび光通信幹線ケーブル用分岐具

(57) 【要約】

【課題】 本発明は融着接続等の大変な作業を工場で行ない、現場では簡単な作業で取付けることができる分岐具を用いて光通信ケーブルの配線を行なうことができる。工場から現場への移送も従来とほぼ同じように行なうことができる光通信幹線ケーブルおよび光通信幹線ケーブル用分岐具を得るにある。

【解決手段】 複数の光心線あるいはテープ光心線がシースで覆われた光通信幹線ケーブル本体の、少なくとも2箇所以上の所定位置のシースを工場で除去して、取り出した光心線あるいはテープ光心線と融着接続された先端部にコネクタが取付けられた接続光ケーブルと、設置現場で接続光ケーブルのコネクタと光配線ボックスに接続されるF Oケーブルのコネクタが接続される接続具が取付けられたベース板および該ベース板部位の光通信幹線ケーブル本体を覆うケース体、ケース体に着脱可能に取付けられるベース板を内部に収納するカバー体とからなる分岐具とで光通信幹線ケーブルを構成している。



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【特許請求の範囲】

【請求項1】 建物上部から下部へ吊り下げ状態で使用される複数の光心線あるいはテープ光心線がシースで覆われた光通信幹線ケーブル本体と、この光通信幹線ケーブル本体の少なくとも2箇所以上の所定位置のシースを工場で除去して、あらかじめ設定された該光通信幹線ケーブル本体の光心線あるいはテープ光心線と融着接続された先端部にコネクタが取付けられた接続光ケーブルと、前記シース除去部分の下部を前記接続光ケーブルの先端部が外方へ突出するように覆うカバーと、設置現場で前記接続光ケーブルのコネクタと光配線ボックスに接続されるFOケーブルのコネクタが接続される接続具が取付けられたベース板、このベース板および該ベース板部位の前記光通信幹線ケーブル本体を覆うケース体、このケース体に着脱可能に取付けられる前記ベース板を内部に収納するカバー体とからなる分岐具とを備えることを特徴とする光通信幹線ケーブル。

【請求項2】 建物上部から下部へ吊り下げ状態で使用される複数の光心線あるいはテープ光心線がシースで覆われた光通信幹線ケーブル本体と、この光通信幹線ケーブル本体の少なくとも2箇所以上の所定位置のシースを工場で除去して、あらかじめ設定された該光通信幹線ケーブル本体の光心線あるいはテープ光心線と融着接続された先端部にMU型簡易フェルールが取付けられた接続光ケーブルと、前記シース除去部分を前記接続光ケーブルの先端部が外方へ突出するように覆うカバーと、設置現場で前記接続光ケーブルのMU型簡易フェルールと光配線ボックスに接続されるFOケーブルのコネクタが接続される接続具および前記接続光ケーブルの融着接続部を収納する収納部が形成されたベース板、このベース板および該ベース板部位の前記光通信幹線ケーブル本体を覆うケース体、このケース体に着脱可能に取付けられる前記ベース板を内部に収納するカバー体とからなる分岐具とを備えることを特徴とする光通信幹線ケーブル。

【請求項3】 建物上部から下部へ吊り下げ状態で使用される複数の光心線あるいはテープ光心線がシースで覆われた光通信幹線ケーブル本体と、この光通信幹線ケーブル本体の少なくとも2箇所以上の所定位置のシースを工場で除去して、あらかじめ設定された該光通信幹線ケーブル本体の光心線あるいはテープ光心線を所定寸法引き出し、その先端部に取付けられたMTコネクタと、このMTコネクタと接続されるMTコネクタが取付けられ、先端部に簡易フェルールが取付けられた接続光ケーブルと、前記シース除去部分の一端部を前記引き出された光心線あるいはテープ光心線の先端部が外方へ突出するように覆うカバーと、前記シース除去部分を覆う一端部に前記接続光ケーブルの簡易フェルールが接続される簡易レセプタクルが取付けられたカバー体とからなる分岐具とを備えることを特徴とする光通信幹線ケ

ーブル。

【請求項4】 光通信幹線ケーブルより分岐された光心線あるいはテープ光心線と融着接続された接続光ケーブルの先端部のコネクタと光配線ボックスに接続される、FOケーブルのコネクタが接続される接続具が取付けられたベース板と、このベース板および該ベース板部位の前記光通信幹線ケーブルを覆うケース体と、このケース体に着脱可能に取付けられる前記ベース板を内部に収納するカバー体とからなることを特徴とする光通信幹線ケーブル用分岐具。

【請求項5】 光通信幹線ケーブルより分岐された光心線あるいはテープ光心線と融着接続された接続光ケーブルの先端部のコネクタと光配線ボックスに接続されるFOケーブルのコネクタが接続される接続具および融着接続部を収納する収納部が設けられたベース板と、このベース板および該ベース板部位の前記光通信幹線ケーブルを覆うケース体と、このケース体に着脱可能に取付けられる前記ベース板を内部に収納するカバー体とからなることを特徴とする光通信幹線ケーブル用分岐具。

【請求項6】 光通信幹線ケーブルのシース除去部分を着脱可能に覆うことができるケース体と、このケース体の一端部に取付けられた前記光通信幹線ケーブルより引き出された光心線あるいはテープ光心線にMTコネクタ接続された接続光ケーブルの簡易フェルールが接続される簡易レセプタクルとからなることを特徴とする光通信幹線ケーブル用分岐具。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明はオフィスビル等の建物に光通信幹線ケーブルを設置する場合に使用される光通信幹線ケーブルおよび光通信幹線ケーブル用分岐具に関する。

【0002】

【従来の技術】従来、オフィスビル等の建物には地下に設けた外部からの光通信幹線ケーブルに接続される構内光キャビネットPTに、接続された建物上部より吊り下げられた光通信幹線ケーブルの所定のテープ心線を所定の階に設置した構内光キャビネットPDに融着接続するとともに、該構内光キャビネットPDより、その階および上下階に光ケーブルを用いてそれぞれの階に設置された回線接続装置に接続している。

【0003】

【発明が解決しようとする課題】従来の建物に吊り下げ状態で使用される光通信幹線ケーブルは、設置現場で所定位置のシースを除去し、該光通信幹線ケーブルのテープ心線を構内光キャビネットPDに融着接続する作業を行わなければならない、その作業が大変で、手数がかかるという欠点があった。

【0004】

本発明は以上のような従来の欠点に鑑み、融着接続等の大変な作業を現場で行うことなく、工場

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で行なうことができ、現場では簡単な作業で取付けることができる分岐具を用いて光通信ケーブルの配線を行なうことができる。工場から現場への移送も従来とほぼ同じように行なうことができる光通信幹線ケーブルおよび光通信幹線ケーブル用分岐具を提供すること目的としている。

【0005】本発明の前記ならびにそのほかの目的と新規な特徴は次の説明を添付図面と照らし合わせて読むと、より完全に明らかになるであろう。ただし、図面はもっぱら解説のためのものであって、本発明の技術的範囲を限定するものではない。

【0006】

【課題を解決するための手段】上記目的を達成するために、本発明は建物の上部から下部へ吊り下げ状態で使用される複数の光心線あるいはテープ光心線がシースで覆われた光通信幹線ケーブル本体と、この光通信幹線ケーブル本体の少なくとも2箇所以上の所定位置のシースを工場で除去して、あらかじめ設定された該光通信幹線ケーブル本体の光心線あるいはテープ光心線と融着接続された先端部にコネクタが取付けられた接続光ケーブルと、前記シース除去部分の下部を前記接続光ケーブルの先端部が外方へ突出するように覆うカバーと、設置現場で前記接続光ケーブルのコネクタと光配線ボックスに接続されるF Oケーブルのコネクタが接続される接続具が取付けられたベース板、このベース板および該ベース板部位の前記光通信幹線ケーブル本体を覆うケース体、このケース体に着脱可能に取付けられる前記ベース板を内部に収納するカバー体とからなる分岐具とで光通信幹線ケーブルを構成している。

【0007】また、本発明は光通信幹線ケーブルより分岐された光心線あるいはテープ光心線と融着接続された接続光ケーブルの先端部のコネクタと光配線ボックスに接続されるF Oケーブルのコネクタが接続される接続具が取付けられたベース板と、このベース板および該ベース板部位の前記光通信幹線ケーブルを覆うケース体と、このケース体に着脱可能に取付けられる前記ベース板を内部に収納するカバー体とで光通信幹線ケーブル用分岐具を構成している。

【0008】

【発明の実施の形態】以下、図面に示す実施の形態により、本発明を詳細に説明する。

【0009】図1ないし図9に示す本発明の第1の実施の形態において、1はオフィスビル等の建物2の上部階より各階の床面に形成された貫通孔3、3、3、3を通過して、下部階へ吊り下げ状態で設置される本発明の光通信幹線ケーブルで、この光通信幹線ケーブル1はあらかじめ設置される現場に合うように設計されたものを工場で製造したもので、図3に示すように4心テープ光心線4、4、4、4、4を5個設けたテープスロット型光通信幹線ケーブル本体5と、この光通信幹線ケーブル本

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体5の先端部に、図4に示すように取付けられた前記建物2の天井部位に固定された取付け金具6に取付けることができるケーブル吊り具7と、前記光通信幹線ケーブル本体5の前記建物2の各階に位置する部位のシース8を、図5に示すように除去して、あらかじめ設定された該光通信幹線ケーブル本体5の4心テープ光心線4、4、4、4と融着接続され、保護チューブ9で覆われるとともに、先端部にMU型簡易フェルル10、10、10、10が取付けられた接続光ケーブル11、11、11、11と、前記シース8除去部分の下部を前記接続光ケーブル11の先端部が外方へ突出するように覆うカバー12、12、12、12とで構成されている。

【0010】13、13、13、13は設置現場で前記接続光ケーブル11、11、11、11と光配線ボックス14、14、14、14に接続されたMU型コネクタ15が備えられたF Oケーブル16、16、16、16と接続するとともに該接続部位を覆う分岐具で、この分岐具13、13、13、13は図7ないし図9に示すように、前記光通信幹線ケーブル本体5のシース8除去部に支持させることができる、前記接続光ケーブル11の融着接続部を収納する収納部17および前記接続光ケーブル11のMU型簡易フェルル10、10、10、10と前記F Oケーブル16のMU型コネクタ15と接続される接続具18とが設けられたベース板19と、このベース板19および該ベース板19取付け部位の前記光通信幹線ケーブル本体5を覆うことができるベース板支持部20が形成された下端部が順次小径となる箱状のケース体21と、このケース体21の開口部21aを覆うように複数のビス22で該ケース体21に取付けられる内部に前記ベース板19を位置させる、下端部が順次小径となるカバー体23とで構成されている。

【0011】上記構成の光通信幹線ケーブル本体5に工場で作成された接続光ケーブル11、11、11、11を融着接続させ、該接続部を保護カバー等によって保護して設置現場に運び、分岐具13、13、13、13を取付けながら、建物2の上部階より下部階へ吊り下げたり、あるいは上部階より下部階へ吊り下げた後に分岐具13、13、13、13を取付け、光通信幹線ケーブル1を完成させる。

【0012】

【発明の異なる実施の形態】次に、図10ないし図22に示す本発明の異なる実施の形態につき説明する。なお、これらの本発明の異なる実施の形態の説明に当たって、前記本発明の第1の実施の形態と同一構成部分には同一符号を付して重複する説明を省略する。

【0013】図10ないし図13に示す本発明の第2の実施の形態において、前記本発明の第1の実施の形態と主に異なる点は、上下端部を順次小径となるケース体2

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【図15】本発明の第3の実施の形態の説明図。

【図16】本発明の第3の実施の形態の分岐具の取付け状態の説明図。

【図17】本発明の第3の実施の形態の分岐具の分解図。

【図18】本発明の第4の実施の形態の使用状態の説明図。

【図19】本発明の第4の実施の形態の説明図。

【図20】本発明の第4の実施の形態の分岐部の接続状態を示す説明図。

【図21】本発明の第4の実施の形態の分岐具の取付け状態の説明図。

【図22】本発明の第4の実施の形態の斜視図

【符号の説明】

1. 1A, 1B, 1C: 光通信幹線ケーブル、2: 連 *

* 物、

3: 貫通孔、4: 4心テープ光心

線、5: 光通信幹線ケーブル本体、6: 取付け金具、

7: ケーブル吊り具、8: シース、

9: 保護チューブ、10: MU型簡易フェルル、11

1. 11A: 接続光ケーブル、12: カバー、13, 1

3A, 13B, 13C: 分岐具、14: 光配線ボック

ス、15: MU型コネクタ、16: FOケーブル、

17: 収納部、18, 18A: 接続具、19: ベ

ース板、20: ベース板支持部、21, 21A, 21

10 B: ケース体、22: ビス、23, 23

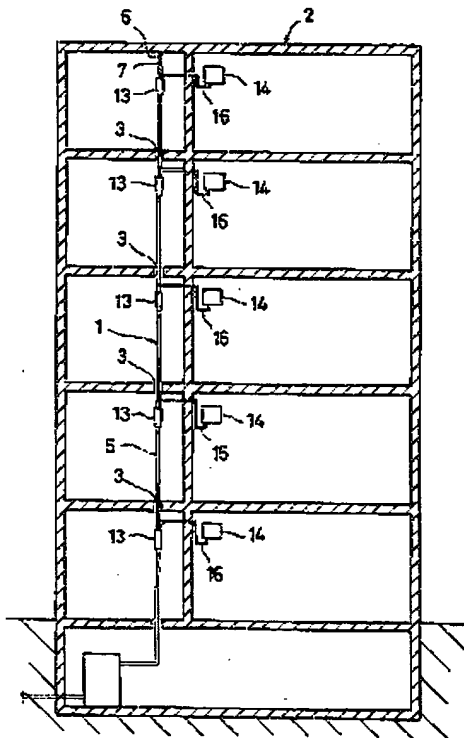
A, 23B: カバー体、24: コネクタ、2

5: MTコネクタ、26: MTコネクタ、27:

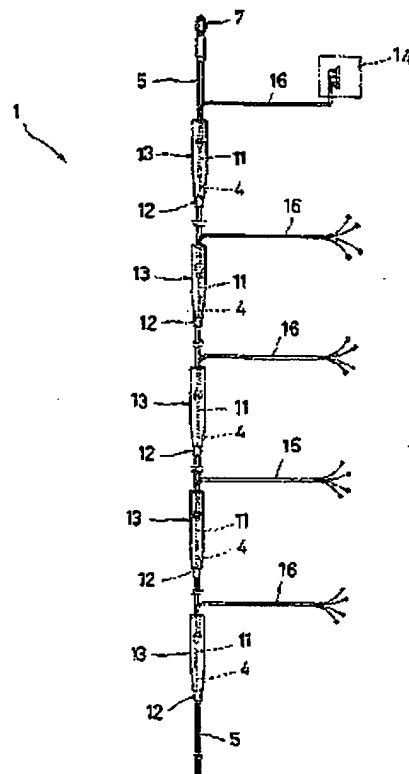
簡易フェルル、28: 接続光ケーブル、29: 簡易

レセブタクル、30: 軟質性ビニールカバー。

【図1】



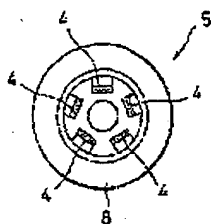
【図2】



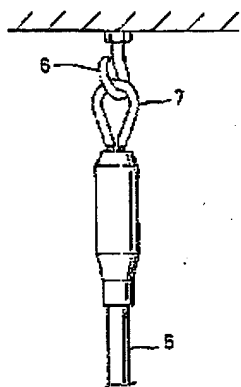
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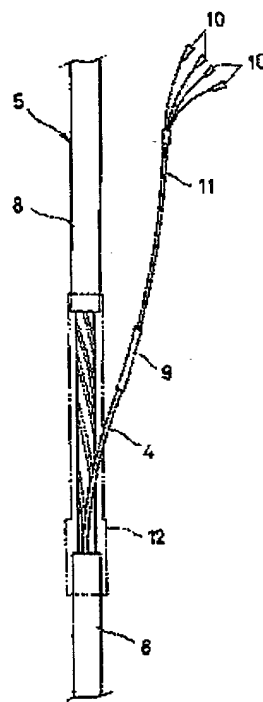
【図3】



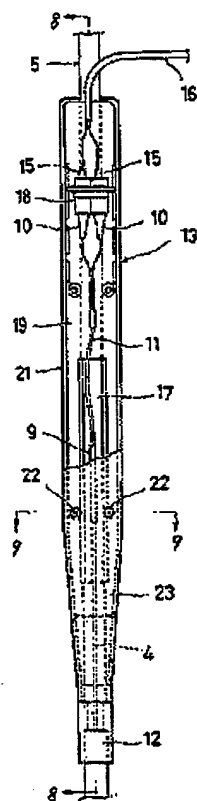
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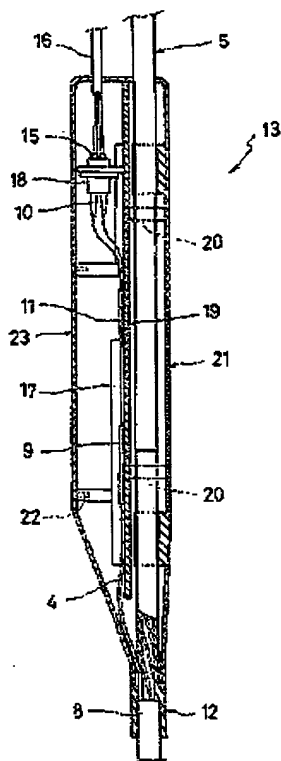
【図5】



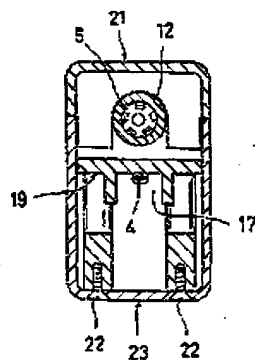
【図6】



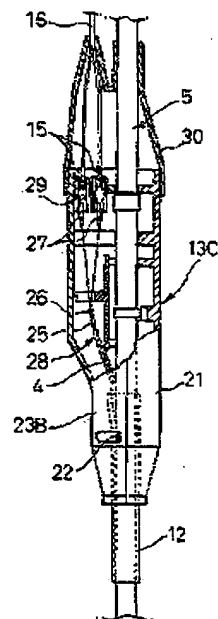
【図8】



【図9】



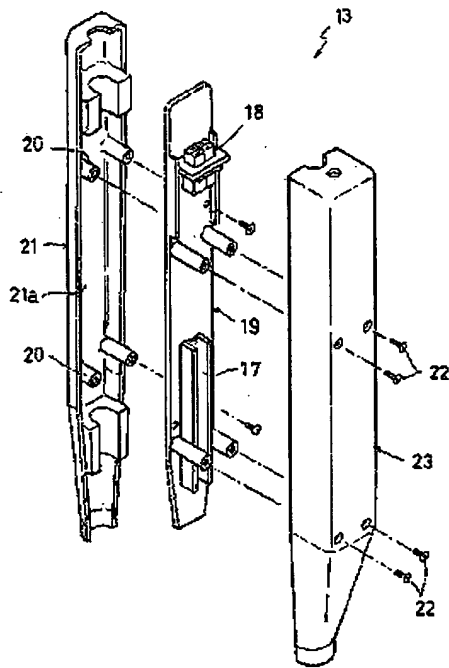
【図21】



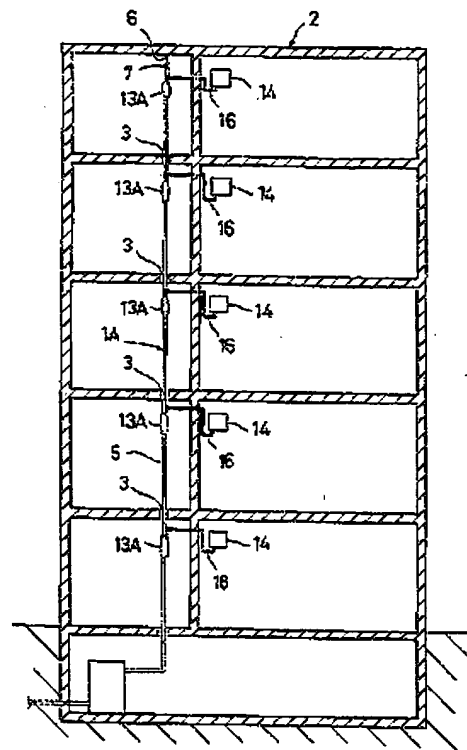
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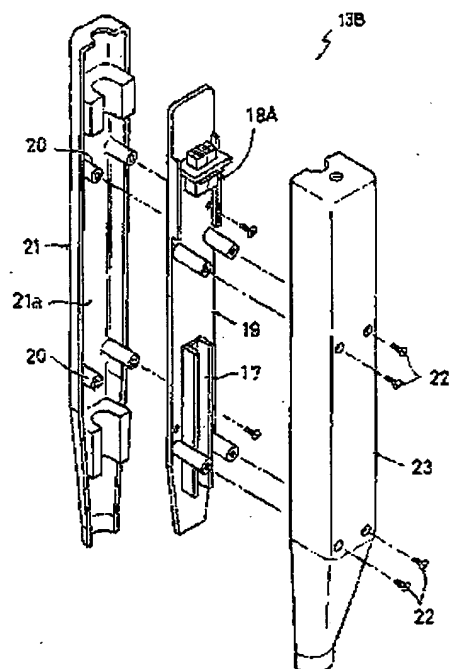
【図7】



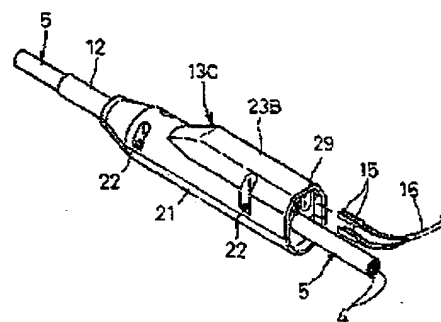
【図10】



【図17】



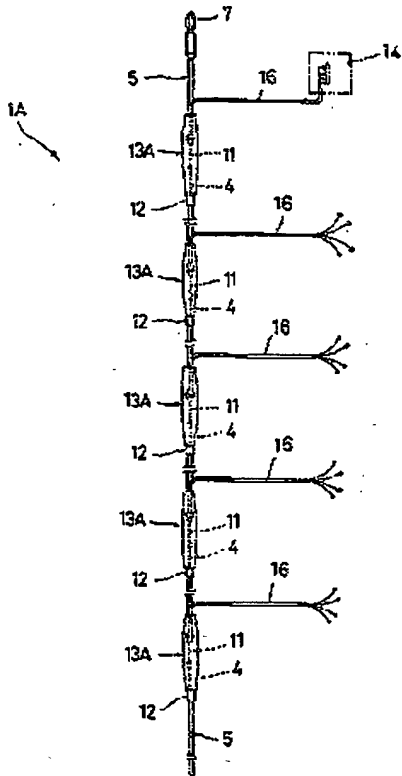
【図22】



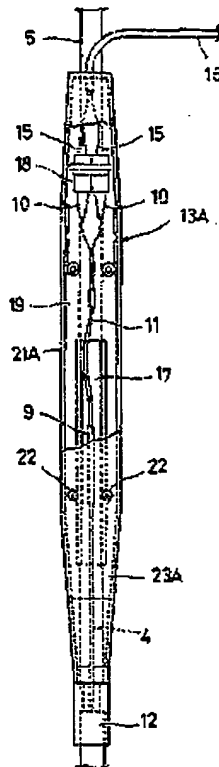
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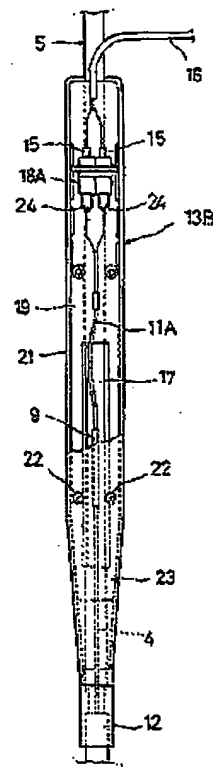
【図11】



【図12】



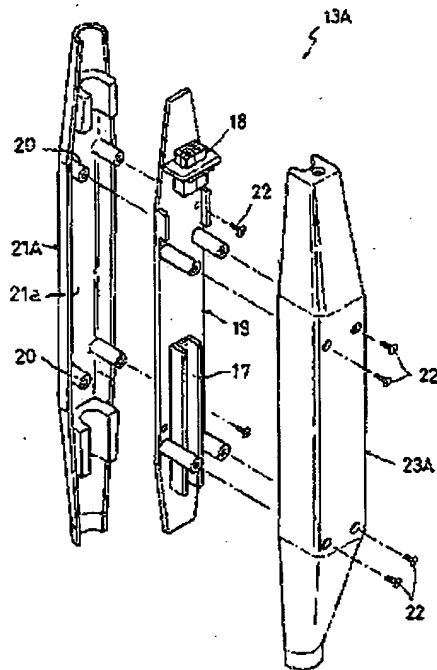
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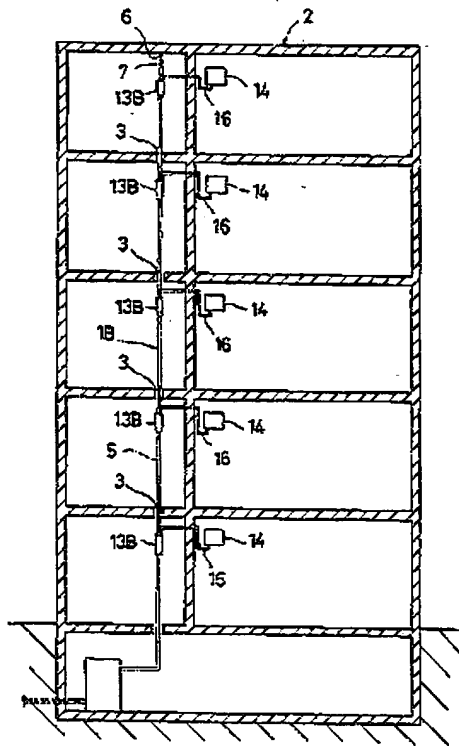
(9)

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【図13】



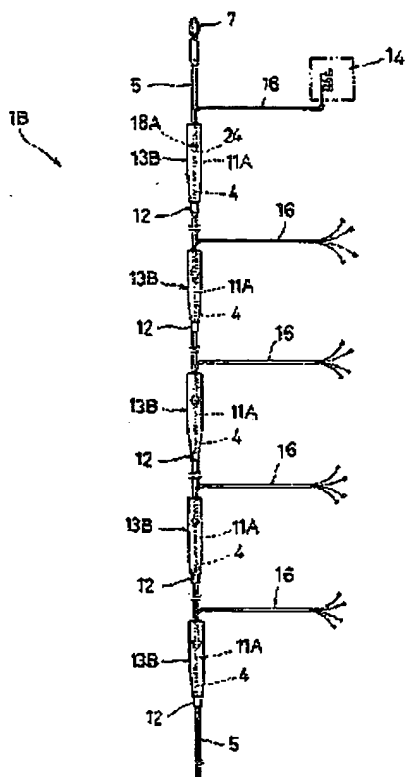
【図14】



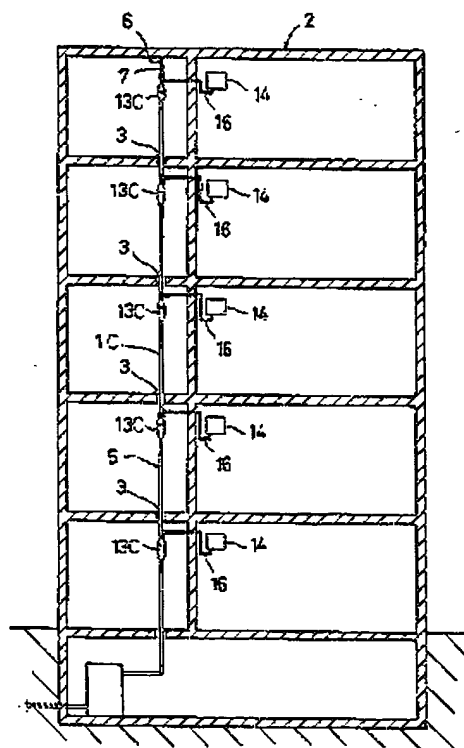
(10)

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【図15】



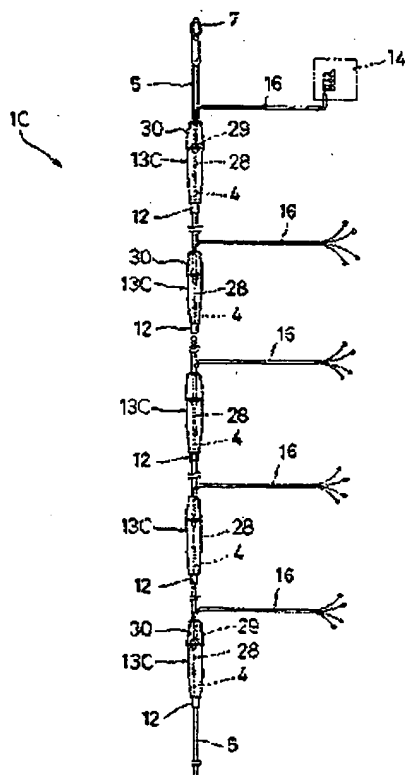
【図18】



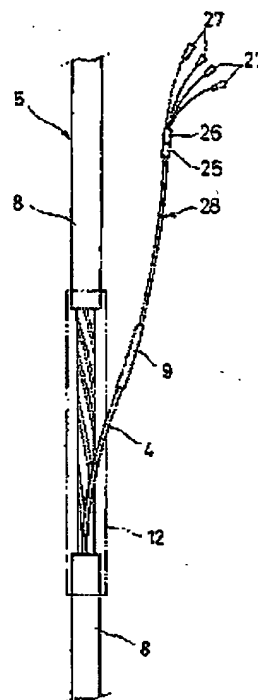
(11)

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【図19】



【図20】



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